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ABSTRACT

This packet contains three papers from a symposium on evaluating university human resource development (HRD) programs. The first paper, "Where Have All the Young Ones Gone? An Analysis of the Graduates of an Human Resource Development Program" (Douglas H. Smith, Jo D. Gallagher), reports the results of a survey of graduates between 1998 and 1999. Forty graduates responded, relating that more than 90 percent are working in HRD or a related field. They indicated the program enabled them to adequately carry out their responsibilities and identified weaknesses in the program (which are now being addressed), along with key competencies needed by graduates. The second paper, "Effective Strategies for Recruiting College Students: The Case of Louisiana State University College of Agriculture" (Fredrick Muyia Nafukho, Michael F. Burnett), reported on a study made to determine effective recruitment strategies for a university agriculture program. Data collected from 226 prospective freshman showed that substantively and statistically significant models exist that enhanced the researchers' ability to explain enrollment status. The study suggested enrollment modeling as a basis for enrollment management. The final paper, "Innovative Techniques in the Training of Health Professionals: The Case of Moi University, Faculty of Health Sciences, Kenya" (Simon Kangethe, Fredrick Muyia Nafukho, Alfred M. Mutema), argues that innovative teaching and learning methods are quickly replacing the traditional methods that were characterized by straight lectures, large group demonstrations, and apprenticeships, with the current emphasis being on placing the learner at the center of the learning process, and the responsibility shifting from the teacher to the learner. The training of health professionals in Kenya is the setting for the discussion. The papers contain reference sections. (KC)

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2000 AHRD Conference

Assessing University Programs

Symposium 9

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Where Have All the Young Ones Gone? An Analysis of the Graduates of an Human Resource Development Program

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The faculty of an human resource development program conducted a survey of graduates between 1998 and 1999. Forty graduates responded. Over 90% are working in HRD or AE or a related field. They indicated the program enabled them to adequately carry out their responsibilities. They identified areas of weakness, now being addressed. They also identified key competencies needed by graduates to be effective. A number of recommendations were given for other studies and for the program.

Keywords: Performance Measurement, Graduate Program Evaluation, Doctoral and Masters Students

Graduate programs in Human Resource Development (HRD) and Adult Education (AE) have experienced continuous growth over the past half century. The American Society for Training and Development (1999) has identified over 50 universities in Canada and the U. S. offering graduate programs in HRD, and the Commission of Professors of Adult Education (1999) lists over 60 universities offering AE programs. Thus, many graduates have received degrees in HRD and AE, and are engaged in a variety of occupations and professions. An important question to be asked is how well do we know what occupations and professions HRD graduates are engaged in, and equally important, to what degree did their graduate studies and degree contribute to their profession?

This was the goal of the study conducted by the Adult Education and Human Resource Development (AE/HRD) program at a major university in Southeast United States. The purpose was to determine the present positions and roles of graduates of the AE/HRD program, to determine the degree of impact the program had upon their professional life, and to seek their opinions and perceptions about the program. Two related purposes were to review the program in light of the graduates' comments, and to advise current students of actual positions and roles held by graduates of the program. This was the first such study conducted of this program, and the questionnaire and process would be of benefit to other HRD and/or AE programs.

The results of this also added to the knowledge base regarding professional continuing education in general, and AE/HRD graduate programs in particular. It has already provided the participating faculty and their students better information for academic and career decisions.

Theoretical Framework

The study is based on the theoretical frameworks in three areas: career counseling and development, total quality and continuous improvement, and the more recent development of performance-based learning. Career counseling and development has a long history of research (Ashar & Skenes, 1993; Vanderpool & Brown, 1994; Naretto, 1995, Evans, Forney, & Guido-DiBrito, 1998, Pascarella, & Terenzini, (1998), but relatively little at the graduate level and the assessment of graduate education as perceived by alumni.

Similarly, an increasing amount of research has assessed the impact of total quality and continuous improvement, with mixed results it should be noted (Lewis & Smith, 1994; Arcaro, J. S., (1995), Petrick & Furr (1995)). Similar to the research in career counseling and development, the assessment of the quality of education in general and graduate education in particular has received relatively minimal attention.

Finally, the transition from developmental to performance-based learning is presently occurring, with the theoretical framework still being developed. Research is mostly applied and within corporate and government environments (Brinkerhoff & Gill, 1994; Robinson & Robinson 1995; Swanson, & Holton, (1999); Gilley, Boughton, & Maycunich, 1999), with very few studies in higher education. Thus, this study will contribute to the growing

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research in these three respective areas.

Research Questions and Hypotheses

Two research questions and related hypotheses guided the study:

Q_1 - How many of the alumni of the AE/HRD graduate program are now professionally engaged in Human Resource Development or Adult Education?

H_1 - A majority of the responding graduates are working in AE/HRD or related positions and fields.

Q_2 - What are the perceptions of alumni about the program?

H_2 - A majority of the graduates perceive the program to be beneficial in their professional growth.

Research Design

A survey was sent to 179 people who have graduated over the past ten years (1989 -1999) from an AE/HRD graduate program (two masters degrees and a doctoral degree) in a major urban university in Southeastern United States. The survey was conducted as part of the renewal of regional accreditation of the university. The College of Education, where the AE/HRD program is housed, urged all faculty to assess the impact of their programs. The AE/HRD faculty used this opportunity to seek specific information from the graduates regarding their present lives and their perceptions about the AE/HRD program.

The questionnaire was derived from a general questionnaire the College of Education (COE) developed to solicit feedback from all graduates on the impact of the degree programs (undergraduate and graduate) had upon their present work and profession. The AE/HRD faculty used some of the items from the COE questionnaire, and added additional questions specifically addressing the AE/HRD program. The questionnaire was divided into three parts: (1) a preference rating of 23 outcomes of the graduate program and a request to identify the strongest and weakest aspects of the program; (2) the identification of the competencies a person must have when completing the AE/HRD program to be a successful practitioner and professional in HRD or AE; and (3) their current position and future plans, and an optional opportunity to write a brief guided personal autobiography of their lives since completing their program, giving a summary of both their professional and personal lives. This paper presents the data and conclusions from parts one and two.

The analysis of the resulting data consisted of both quantitative and qualitative processes. The data from part one were tabulated, with a comparative analysis conducted based on degree received and year graduated (e.g., do masters graduates perceive the program differently than doctoral graduates; are there any differences in the responses from recent graduates, the last two years, and those who graduated eight to ten years ago?) A content analysis was conducted of the data from part two, with the identification of the strongest and weakest areas, and the ranking of the recommended competencies.

Findings and Discussion

Response Rate.

A total of 40 responses were received. As a quantitative measure, the response rate was at the minimal level of acceptance (22%). Therefore, extrapolation and generalization to the total population have been conservatively applied, as have the recommendations at the end of this paper. As this is the first survey ever conducted, it is the intent to continue surveying the graduates of the program at least bi-annually (see recommendations). The responses received in this survey, discussed below, have warranted further review and consideration in future planning. Such data should be periodically sought in future surveys.

Population.

The graduates responding were from all three degree programs : the doctoral program (EdD) in Adult Education and Human and Human Resource Development (n = 12), and the two masters (M.S.) programs in Human Resource Development (n = 8), and M.S. in Adult Education (n = 19). One graduate did not give a degree, but did complete

the survey, and the data were included. The higher number of Adult Education graduates were not all adult education majors, as only one degree, M.S. in Adult Education, was offered up to Spring 1994, with an emphasis in HRD or AE.

The graduates were asked to give their present occupation, indicating if they were in human resource development, adult education, a related field, or not in any of these fields. All but one (98%) responded. Table 1 summarizes the positions by degree and year. Over 90 % are either working in AE or HRD (27, 68%), or in a related field (9, 23%).

Table 1. Present Positions of Graduates by Degree and Year of Graduation* (N = 39)

Working in Ad. Ed. or HRD (N = 27)	**Working in a related field (e.g., Personnel Admin./ HRM, Management) but not in AE/HRD (N = 9)**
Masters, Adult Education (N = 12)**	**Masters, Adult Education (N = 5)**
1989 Occupational Therapist - Academic Fieldwork Coordinator	1992 Organization Development
1991 Clinical Educator	1993 Human Resource Manager
1992 Director of Organization Development	1992 Campus President [private university]
1992 Adjunct Occupational Therapist Lecturer	1994 Director - Office of Quality Management
1992 Employee Development/Compensation Mgr.	1998 Human Resource Manager
1993 Instructional Designer	**Masters, Human Resource Development (N = 3)**
1993 Public Programs Manager	1994 Director of Human Resources
1995 Multimedia Training Specialist	1998 Senior Research Associate, Clinical Coordinator [medical center]
1996 Educational Supervisor	(No year given) District Office Supervisor for a State agency
1996 Nurse Manager - Staff assessment/development and training new employees	**Doctorate, AE/HRD (N = 1)**
1996 Vice President [management development company]	1997 Director of Student Activities
1996 Director of Training [manufacturing and service company]	**Not currently working in Ad. Ed., HRD, or any related field (N = 3)**
Masters, Human Resource Development (N = 6)	**Masters, Adult Education (N = 2)**
1997 Senior Facilitator [organizational and management consulting company]	1990 Trauma Research Nurse, [regional hospital]
1998 Instructor	1995 Director of Educational Technology and Lecturer, Computer Science Dept., [public university]
1998 Senior Research Associate/Lab coordinator	**Masters, Human Resource Development**
1998 Instructor / Curriculum Development	(None)
1998 Program Manager, Organizational Leadership and Development [medical center]	**Doctorate, AE/HRD (N = 1)**
1999 Staff Development Specialist	1991 Adult Nurse Practitioner (occasionally involved in staff education or community education projects)
Doctorate, AE/HRD (N = 9)	
1989 Director, Continuing Education at [private university]	
1990 Director of Training	
1996 Director International Student Systems and VA Students. A full professor (by rank) at [community college].	
1996 President - Consulting Co.	
1996 Assistant Professor - HRD Program	
1997 Research faculty at [public university] and faculty member, Department of Transportation	
1997 Director of Education and Training	
1998 Curriculum Development Specialist	

1999 Assistant Principal, Adult Education Center at [school district]	

* Place of employment was not requested, but is given, in generic terms, if stated in the questionnaire.

** Only one degree, M.S. in Adult Education, was offered up to Spring 1994 , with a major in HRD or AE. As of Fall, 1994, an M. S. in AE and an M. S. in HRD was offered.

Survey Results.

Assessment of the Program

The graduates were asked in Part One to indicate their level of agreement (from strongly agree to strongly disagree) to 23 statements regarding their use of what they learned in their graduate program (see Table 2). The statements addressed four educational areas: knowledge (e.g., 'Understand the ways that knowledge in my field is organized'); skills (e.g., 'Use a variety of instructional strategies for diverse populations'); attitudes (e.g., 'Engage in reflective research inquiry", and 'Be disposed toward employing critical thinking strategies in my professional roles'); and faculty and scheduling (e.g., 'I found my professors to be competent in the subject matter they taught" and 'Regarding the scheduling and sequencing of the courses, I got the courses I needed when I needed them').

The grand mean of all the responses was 4.36, with 5.00 = strongly agree and 1.00 = strongly disagree. Thus, the graduates generally agreed or strongly agreed that the knowledge, skills, and attitudes taught in their graduate program enabled them to adequately carry out their present roles and responsibilities. Two clusters of responses were below the grand mean and should be noted. First, an average of 12 % of the respondents indicated they disagreed or were uncertain that the skills received in their program -- use instructional technologies to facilitate teaching and learning, and use a variety of instructional strategies for diverse populations -- were adequate. This was further clarified in later, short answer questions that are discussed in the next section ..

In a second cluster, an average of 25 % of the graduates indicated they disagreed or were uncertain that specific attitudinal areas -- interpret philosophical differences in educational thought, engage in reflective research inquiry, influence community political efforts, and being disposed toward professional leadership roles, and being disposed toward scholarly activity -- were adequately developed. As indicated above, these response statements were from the college-wide survey sent to all graduates, and, in retrospect, these specific items did not clearly apply to the abilities emphasized in the graduate program. The graduates answered the questions honestly; however, with the exception of reflective research (Table 1, item 14), these attitudes are not specifically presented in the program.

The graduates were asked to give recommendations to improve the offering of courses. The 20 (50%) responding collectively recommended more application, or "hands on" experiences, and greater coordination and scheduling of courses. This was recommended by masters and doctoral graduates, and younger and older graduates.

Two final program assessments questions asked the graduates to identify, in light of what they are doing now, the strongest and weakest areas of their graduate program. It appears that they took advantage of this opportunity to express their opinions, as 37 (93%) commented on the strengths of the program, and 27 (68%) on the weaknesses. Three major themes were identified as the program's strength: instructional design and development, adult learning and learning theory, and the development and management of AE and HRD programs. These themes reinforce the two major components of the program, educational (instructional) development, and organizational development. The relative weaknesses of the program identified by the graduates were a lack of specific applications (mentioned above), educational/instructional technology, and applied research. The ability to integrate specific applications is likely to be a continuing problem, as the diversity of the field contributes to the problem of giving appropriate examples and case studies. The emphasis of HRD is learning within organizations, while the emphasis of AE is learning by individuals. Programmatically AE primarily takes place in the public sector, more specifically the educational sector, while HRD applies to the public and private sector. HRD in the public sector differs in many ways than HRD in the private sector, however.

The lack of educational technology reflects exponential changes of technology the over the past ten years that results in early graduates now needing skills not delivered when they were students. It also reflects the continuing development of the competencies of the faculty, and hardware and system, all of which are being addressed through further technical training and systems upgrading, and new courses in computer and web-based instruction.

Finally, the weakness in applied research is valid for two reasons. The first reason is tied with the first weakness: applied research is best understood when it can be applied within the context of the learner's enviro n-

ment (work or profession). The second reason is based on a persistent problem of the program being housed in the College of Education. The faculty receive continual complaints about non-AE/HRD courses – courses in research, and educational philosophy and psychology required of all graduate students -- being too oriented to education in general and K-12 education in particular. The AE/HRD faculty work with these faculty, but this will remain a continuing problem as long as the universities and accreditation standards require demonstrated competencies in these areas, and that they be taught by faculty with appropriate training, albeit in primarily educational contexts.

Table 2. Summary N (%) of Responses to Impact of the AE/HRD Graduate Program (N = 40)

The education I received in my AE/HRD program in the College of Education enabled me to:	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Mean
1. Understand the ways that knowledge in my field is organized.	21 (53)	18 (45)	1 (3)	0	0	4.43
2. Understand the subject matter in my field in depth.	19 (48)	16 (40)	3 (9)	3 (9)	0	4.35
3. Understand the moral and ethical questions related to specific subject matter content.	16 (40)	18 (45)	6 (15)	0	0	4.25
4. Understand how people develop and learn.	28 (70)	11 (28)	0	1 (3)	0	4.65
5. Understand how to convey and reveal subject matter to learners.	28 (70)	11 (28)	0	0	1 (3)	4.63
6. Understand the (political, social, cultural, philosophical) contexts in which adult learning takes place.	20 (50)	19 (48)	0	0	1 (3)	4.43
7. Engage in the pursuit of new knowledge in my field.	21 (53)	17 (43)	1 (3)	1 (3)	0	4.45
8. Use instructional technologies to facilitate teaching and learning.	18 (45)	14 (35)	3 (8)	5 (12)	0	4.13
9. Use a variety of instructional strategies for diverse populations.	19 (48)	16 (40)	3 (8)	2 (5)	0	4.30
10. Use a variety of methods in my subject to enrich learning.	21 (53)	15 (38)	2 (5)	2 (5)	0	4.38
11. Draw on my knowledge of human development, subject matter and instruction, and my understanding of students to make principled judgements about sound practice.	24 (60)	14 (35)	1 (3)	1 (3)	0	4.53
12. Interpret philosophical differences in educational thought.	12 (30)	21 (53)	6 (15)	1(3)	0	4.10
13. Shape my own professional and curricular values.	23 (58)	17 (43)	0	0	0	4.58
14. Engage in reflective research inquiry.	18 (45)	15 (38)	5 (12)	2 (5)	0	4.23
15. Influence community political efforts.	9 (23)	10 (25)	13 (33)	7 (17)	0	3.55
16. Be disposed toward being in leadership roles in professional organizations.	12 (30)	16 (40)	9 (22)	3 (8)	0	3.93
17. Be disposed toward being engaged in scholarly activities.	12 (30)	22 (55)	6 (15)	0	0	4.15
18. Be disposed toward working collaboratively and creatively with learners.	25 (63)	13 (33)	1 (3)	1 (3)	0	4.85
19. Be disposed toward employing critical thinking strategies in my professional roles.	22 (55)	17 (43)	1 (3)	0	0	4.53
20. I found my professors to be competent in the subject matter they taught.	25 (63)	15 (38)	0	0	0	4.63
21 .I found my professors to professionally represent the field.	24 (60)	14 (35)	1 (3)	0	1 (3)	4.50
22. Regarding the scheduling and sequencing of the courses, I got the courses I needed when I needed them.	22 (55)	17 (43)	0	0	1 (3)	4.48
23. (For doctoral graduates) I found my professors to adequately carry out their program and dissertation responsibilities. (N = 13)	6 (46)	5 (39)	2 (15)	0	0	4.31

Grand Mean = 4.36

Recommendations for improving the program

The graduates were asked in Part Two to reflect on the program itself and identify the competencies a person must have when completing their AE or HRD program in order to be a successful practitioner and professional in the field. They were asked to identify and rank the top five competencies. The response to this request was high: 34 (85%) graduates listed 170 competencies. The rankings varied: what were highly ranked competencies of one graduate may be lower ranked by another. For some, the competencies listed reflected what they were dealing with in their present work, e.g., graduates are being given greater human resource responsibilities and now are seeing the need for greater understanding of human resource management (HRM), and some are dealing with leadership and management issues and would like to have more competence in gaining support from leadership.

Table 2 presents a representative selection of competency lists by degree and the year of graduation, showing the similarity of responses regardless of their degree or when they graduated. The collective answers to this question affirmed the responses discussed in *Part One*. The graduates believe the three competencies (i.e., most often listed as the first or second competency) persons coming out of an AE/HRD program must have are (1) educational/instructional development ("needs/tasks analysis," "curriculum design," "ADDIE (analysis, design, deve l-opment, implementation, evaluation) principles"); (2) adult learning ("understand how people learn," "adult teaching and learning," "adult education techniques for learning") and (3) organizational development ("ability to recognize the environment for education," "leadership and management skills," "organizational consultation"). Other competencies identified in the top five were history and current trends in AE/HRD, critical thinking strat e-gies, platform/presentation skills, principles of total quality management (TQM), delivery in multi-formats (inte r-net, computer, CD ROM), and working with and in teams.

Table 3.
Selected List of Competencies by Degree, and Year of Graduation.

Degree, Year Received & Ranked Competencies	Doctorate, Adult Education and Human Resource Development
Masters, Adult Education*	
1990 1 Communication skills	1991 1 Ability to design, implement and evaluate adult education programs
2 Adult learning principles	2 Ability to design, implement, and evaluate educational research.
3 Adult teaching principles	3 Ability to use technology in learning, i.e., distance learning.
4 Development coordination and implementation of programs	4 Ability to evaluate commercial educational products and consult with organization to elicit change through adult education.
5 Data collection and statistical analysis	5 Competency in writing grant proposals/ writing for publications.
1996 1 Ramification surrounding adult learning	1998 1 Adult ed techniques for learning
2 Community resources	2 Human resource development practices, principles & techniques
3 Program management	3 Management of HRD
4 Career development	4 Strong critical thinking for new approa ches in the field of AE/HRD
5 Presentations	5 Research
6	
Masters, Human Resource Development*	
1998 1 Organizational and programmatical understanding of process	
2 ADDIE [analysis, design, development, implementation, evaluation] principles	
3 Management process and principles	
4 Good computer skills	
5 Understanding research process	
1999 1 Assessing and evaluating needs	
2 Designing a course synapsis	
3 Developing courses in many formats - video, lecture, CD ROM	

4 Performance improvement and writing performance based learning objectives	

* Only one degree, M.S. in Adult Education, was offered up to Spring 1994 , with a major in HRD or AE. As of Fall, 1994, an M. S. in AE and an M. S. in HRD was offered.

Conclusions and Recommendations

The study was conducted to determine the occupational/professional life of persons who graduated between 1989 and 1999 from a graduate (masters and doctorate) Adult Education and Human Resource Development program, and to seek their opinions and perceptions about the program. Forty graduates responded by completing a questionnaire that sought their opinions on specific outcomes, the strengths and weaknesses of the program, and the competencies they believe are needed to effectively work in HRD and AE. The study was guided by two research questions and hypotheses. The first was, how many of the alumni of the AE/HRD graduate program are now professionally engaged in HRD or AE? (H_1, A majority of the responding graduates are working in AE/HRD or related positions and fields.) As presented in Table 1, 36 (93%) of the graduate are either working in AE or HRD (27, 68%), or in a related field (9, 23%). Thus, the first question was answered affirmatively, and the hypothesis H_1 can be accepted.

The second research question was, what are the perceptions of alumni about the program? (H2, A majority of the graduates perceive the program to be beneficial in their professional growth.) As presented in Table 2, the grand mean if the responses to 23 statements on their use of what they learned in their graduate program was 4.36 (5 = strongly agree). Thus, the second question was also answered affirmatively, and the hypothesis accepted. It should be noted, however, that the mean for 10 of the 23 statements was below the grand means (range 4.35 - 3.55), and, as present above, clustered around two areas - skills in instructional technology and strategy, and development of philosophical, professional, and scholarly attitudes. In other words, while the program was found to be high beneficial, there are areas that warrant further development.

The study further identified key knowledge, skills, and abilities needed in the field by asking the graduates to list the top five competencies they believe are needed in HRD and AE. As presented in the representative competencies in Table 3, the three primary competencies, or more accurately, the competency groups were educational/instructional development, adult learning, and organizational development. These also are the primary areas of development of the AE/HRD program. Thus, the responses can be interpreted as predictable, or the program addresses the needed competencies as indicated by professional practitioners. Their being graduates of the program, but also successful professional leaders and practitioners, it would be acceptable to concluded that both are interpretations are correct.

From this study the following seven recommendations can be made. The first are four recommendations pertaining to the study and its further followed by three recommendations specific to the program.

First, this is the first study of the program. While a exhaustive search of AE and HRD program evaluations was not conducted, the search via email and ERIC revealed that, while programs are evaluated, few evaluations are published. The first recommendation, therefore, is to have the professional bodies (Academy for Human Resource Development (AHRD) and the Commission of Professors of Adult Education (CPAE)) initiate a process of collecting program evaluation reports to use as a reference source of data, instruments, and conclusions and recommendations.

A second recommendation, from the first, is to establish standards of practice and performance. While this has been discussed, and the CPAE established standards in the early 1980's, little reference is made to them, and nothing is presently being discussed.

A third related recommendation is to establish a review process of program reports and possible site visits. Universities, prompted by performance based standards of regional and professional accrediting bodies, are establishing units (offices or departments) of continuous improvement who are given the responsibility of developing and coordinating the performance based evaluation systems.

It is also recommended that the questionnaire be revised to more accurately reflect the program goals and performance outcome. As stated above, the questionnaire was based on a general College survey being conducted as part of the regional accreditation review. While as an initial questionnaire it proved to be effective, it needs to be revised if used again, which the faculty plan to do on a bi-annual basis.

Regarding recommendations specific to the program, based on the study the primary recommendation is the addressing of the identified weaknesses of the program, i.e., instructional technology and strategy skills, philosophical and scholarly attitudes. As an indication of the faculty's perception of the importance of instructional skills, attention has already been given to greater experiential activities and projects in existing classes, and the addition of a methodology course in 1997.

To address the area of philosophical and scholarly attitudes, as stated above, this will remain a problem

with the program being in the College of Education and the requirement of taking general research and educational philosophy and psychology courses that are school (K-12) based.

Regarding the recommendation for better course scheduling, this also has been a persistent problem, as two complete masters and doctoral programs are offered at two campuses, taught by three faculty and occasional adjunct instructors. To address this problem a two-year schedule was implemented in Fall 1998, providing the complete degree programs at both campuses over two years. While the schedule is only in its second year, it appears that it has been favorably received.

Finally, while not a recommendation of the responding graduates, they were asked if they would like to receive a copy of the summary report, all said yes, and would they like to be included in an email listserv of graduates in order that the faculty could communicate with them for further input, internship opportunities for present students, an occasional request for financial support, and allow the opportunity for them to communicate with fellow graduates. All but four agreed.

It is the intent of the faculty to send this paper to all graduates, whether they responded or not and invite the non-responders to also be on the email listserv. It is as important to maintain contact with graduates as it is to seek information from them.

Few studies have been conducted on the effectiveness and impact of Human Resource Development and Adult Education graduate programs. With the increasing move toward performance based learning and outcomes, a foundation of specific outcomes and competencies are needed. This research hopefully contributes to the development of qualified HRD graduates as professionals in their discipline through a process of continuous improvement of the knowledge, skills, and abilities they develop and receive in their graduate programs.

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Effective Strategies for Recruiting College Students: The Case of Louisiana State University College of Agriculture

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The purpose of this study was to determine whether a model existed that significantly increased the researcher's ability to accurately explain whether or not a recruited student in the College of Agriculture at LSU will enroll based upon the current recruitment strategies. The target population for the study consisted of 1,130 prospective freshmen recruited to attend the College of Agriculture in the fall 1997. The actual sample size was determined using Cochran's formula for categorical data to be 143. Since complete data on all the variables for the subjects in the accessible population was obtained, all 226 subjects in the accessible population were studied. The instrument used in this study was a computerized recording form. Data were collected by copying the variables of interest from university undergraduate admissions and the College of Agriculture data bases. Discriminant analysis was used to determine models that explained the subjects' enrollment status. Results showed that substantively and statistically significant models exist which enhanced the researcher's ability to accurately explain enrollment status.

Key Words: Student Recruitment, Enrollment Management, Recruitment Models

For admission offices to be successful in their recruitment efforts today and in the future, they must use a growing knowledge base to guide their recruitment programs. There is need for the analysis of the huge student data bases maintained by university admissions offices and colleges. The field of high school student recruitment is tricky, therefore, colleges are challenged to develop appropriate strategies to compensate for reduction of students in traditional academic programs (Miller & Eddy, 1983). Durkin (1985, p.14) observes that competition has increased in the environment in which institutions operate. Today, institutions are highly visible in the advertising marketplace, not only in newspapers but also in magazines, through direct mail campaigns and even radio and television. A marketing orientation is now being used by colleges to recruit and retain students (Berry & Allen, 1977; Blackburn, 1980; Johnson, 1981; & Kotler, 1976).

Colleges must consider needs and wants of their customers when designing the educational product (Stewart,1991). Even the most reputable colleges have to market themselves in the highly competitive market of student recruitment. Marketing as applied to higher education is a concept that allows college decision makers to think systematically and sequentially about the mission of the organization, the services it offers, the markets it currently serves, and the extent to which these same markets and possibly new ones may demand its services in the future (Ihlanfeldt, 1980a, p.13). Higher education deals with an intangible product that is more of a service than a commodity (Salee & Johnson, 1994). Admission officers therefore need to be careful when they apply marketing concepts to education. There is always some difficulty when it comes to quantifying intangible services such as education. Marketing can, however, enable college management to determine whether its mission matches student interests. In the 1970s and 1980s when the reality of declining students could no longer be denied, more astute college administrators recognized that marketing meant more than selling. It involved strategic decisions in other areas as well and the shift toward adopting a more "customer oriented" perspective began to surface in many institutions (Losher & Miller, 1983, p.9).

Kotler (1975, p.5) defines marketing as the analysis, planning, implementation, and control of carefully formulated programs designed to bring about voluntary exchange of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organization's offering in terms of the target market's needs and desires and on using effective pricing, communication and distribution to inform, motivate and

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service the markets. In higher education, Johnson (1979) observes that marketing tries to give first consideration to the student and societal needs. Losher and Miller (1983) note that one of the basic assumptions of an effective marketing program is that an institution is committed to the philosophy that colleges are in the people business and inflexible decision makers must yield to the needs of the consumers (the students) if they want to recruit them. Although marketing in higher education is mainly associated with promotion and recruitment, Johnson (1979), emphasizes that the scope of an effective marketing program should be more comprehensive and must include research, planning, communication and evaluation. Cox (1980) and Lovelock and Rothschild (1980) argue that marketing should be looked at as a total institutional concept which integrates trustees, faculty, administration and staff efforts into a cohesive team approach. They note further that the level of consumer involvement is of great importance in services marketing.

Unlike business enterprises that process raw materials into final products, colleges are in the 'people' business. The mission of colleges is to admit 'raw' students and process them into final products in the form of graduates. The concern for having the optimal number of students is now more pronounced than it was in the 1960s and 1970s. Faced with competition and limited financial resources, colleges are using several recruitment tactics to attract students. But to attract the required number of students, efficient recruitment strategies must be employed. Every college must develop its own unique selling points. An understanding of student college choice decision making is therefore critical in designing of unique selling points. For instance, while designing recruitment strategies at the college level, it is important to understand what motivates students to choose a given college. On the lack of data about student characteristics in many colleges, Brodigan and Dehne (1997) noted: "We find it strange how little most colleges know about the opinions, expectations, and satisfaction of current students."(p.18). They emphasize that at a minimum, a study of current students allows a college to obtain insights into the kinds of students the college might wish to target for admission as well as for reaching them.

Colleges and universities need to promote themselves as a way of coping with the stiff competition they face in student recruitment. In the 1990s, promotion activities have included college catalogs, direct mail, public relations, outreach programs, campus visits, home pages that most universities maintain, and Telecounseling. Promotion aims at portraying a good image or reputation of the university and therefore influence high schools students' decision to enroll. Psolka (1987, p.1) notes that for an increasing number of institutions, large and small, direct mail cements the strategies used to recruit the dwindling collegiate population. With regard to promotion as a recruitment strategy, Collinson (1987, p.8) observes that most colleges' publications are examples of image advertising designed to attract students.

Given the various sources available to the students and their parents, the majority of today's students understand how to research their college program and institutions offering it. Most students who decide to enroll in agricultural programs will take time to research existing colleges. The students' personal reasons are narrowed down from a university to colleges that offer the relevant program. There is an urgent need for micro-level studies that focus at the college level. Such studies have the ability to estimate the effects of student characteristics, college characteristics, and their interactions on the probability that a student will choose a particular college (Paulsen, 1990). Specific colleges within the university need to establish factors determining student enrollment decisions in order to develop the most appropriate marketing mix of attractive institutional products, delivered in appropriate places, at acceptable prices and appropriately marketed to prospective and potential students. Individual colleges in addition need to establish recruitment models that can assist in explaining and predicting student enrollment status. To develop efficient recruitment strategies at the college level, research is essential.

Statement of the Problem

Recruitment is an essential part of university admissions today. Numerous factors influence the selection of a particular college/university by the students. All universities realize the importance of having sufficient enrollments hence recruitment forms a substantial part of the budgetary allocations of their admissions offices. Colleges within universities must also maintain enrollments. To maintain their enrollments, many colleges have initiated active recruitment programs that supplement university recruitment efforts.

Therefore, the primary purpose of this study was to determine whether a model existed which significantly increased the researcher's ability to explain whether a student enrolled in the College of Agriculture at Louisiana State University based on recruitment strategies used by the university admissions office and the College.

Study Objectives

The following two specific objectives guided the study:

1. To establish whether a model existed that significantly increased the researcher's ability to accurately explain enrollment status among the freshmen recruited for admission in the College of Agriculture at Louisiana State University during the year of investigation, 1997-98 academic year.
2. To determine the most efficient recruitment model employed by the university admissions office and the College of Agriculture during the year of investigation, 1997-98 academic year.

Methodology

The target population for this study was defined as all prospective freshmen who were recruited to attend the College of Agriculture at LSU in the fall of 1997. The accessible population was comprised of fall 1997 prospective freshmen that resided on both the undergraduate admissions and the College of Agriculture databases. The university undergraduate admissions data base houses all undergraduate admissions contacts with students. The College of Agriculture data base equally houses all undergraduate admissions contacts with students such as: TAger Day, telephone, WWW, and attendance at 4-H and FFA functions.

Sample. Each sampling unit was comprised of a student who received at least one contact from both the LSU admissions office and the College of Agriculture prior to fall 1997. The minimum required sample size for the study was determined using Cochran's (1953) sample size formula for categorical data. A comparison of 1,130 students who resided on the College of Agriculture's contact list of 1997 high school seniors, with the university undergraduate data base gave a total of 226 students who met the criteria for inclusion as a member of the accessible population. From the accessible population, the actual minimum required sample size was determined to be 143. However, since complete data on all the variables for all the subjects in the accessible population were obtained, all 226 subjects in the accessible population were included in the study.

Instrumentation and Data Collection. A computerized recording form was the main instrument used for data collection in this study. Specific variables from both the university undergraduate admissions database and the College of Agriculture admissions database were selected. The variables selected were those that addressed the objectives of the study. A file was established into which the variables were systematically copied. The primary criteria of recruitment variables studied included: 1) student demographics 2) Mail contact 3) Campus visitation programs 4) Outreach programs 5) Financial assistance 6) Telecounseling, and 7) use of Internet. Data was collected during the spring and summer semesters of 1998 by copying over 70 variables from the university's undergraduate admissions data base and 29 variables from the College of Agriculture's admissions data base.

Findings

The study was designed to answer one major question: Does a model exist that significantly increases the researcher's ability to accurately explain the enrollment status of the students in the study? This section presents and discusses the results of the prediction models.

Enrollment Prediction Models. Discriminant analysis was the statistical technique employed to establish whether a model existed that significantly increased the researcher's ability to accurately explain enrollment status among the freshmen recruited for admission in the College of Agriculture at Louisiana State University during the 1997 - 98 academic year. This technique was found appropriate since the dependent variable, enrollment status is a dichotomus variable (Klecka, 1980). Three types of models were examined, the comprehensive discriminant model which employed all the recruitment activities measured in the study as well as all demographic information collected by the researcher. The second model, the comprehensive recruitment model included as independent variables only those variables that were specifically designed as recruitment activities by the university admissions office and the College of Agriculture. The third model, the most efficient recruitment model, included the fewest number of recruitment activities employed while still providing the researcher with a model that was both substantively and statistically significant.

The Comprehensive Discriminant Model

This model included all available information from the university admissions office and the College of Agriculture. The comprehensive explanatory model aimed at maximizing the researcher's ability to correctly classify subjects on the dependent variable enrollment status, defined as whether or not the subjects in the study enrolled as students in the College of Agriculture at Louisiana State University. The model included all recruitment activities carried out by the university admissions office and the College of Agriculture as well as the demographic information.

Before conducting a discriminant analysis, the independent variables to be included in the analysis were examined for the presence of multicollinearity. Although several techniques exist for conducting a multicollinearity test, Lewis-Beck (1980) shows that the most powerful method for assessing multicollinearity is to "Regress each independent variable on all the other independent variables"(p.60). The strength of this method lies in the fact that it takes into account the relationship of each independent variable with all the other independent variables and a combination of other independent variables. Whenever the cumulative R^2 values approach 1.0, there is high collinearity. To ensure that there were no cases of collinearity between the independent variables, the cumulative R^2 was checked for all the independent variables. The regression equations for all independent variables revealed two instances of excessive collinearlty. In each instance, one of the variables was eliminated from the final analysis to correct the problem.

The next step in conducting a discriminant analysis is to examine the computed standardized canonical discriminant function coefficients. As shown in Table 1, the centroids for the groups were determined to be -1.40 for the not enrolled group and .69 for the enrolled group. A total of 20 factors entered the discriminant model and produced an overall canonical correlation of $\underline{R} = .701$. This indicates that the combination of the 20 factors in the model explained a total of 49% of the variability in whether or not students entered the College of Agriculture at LSU as freshmen.

Table 1:
Summary Data for Stepwise Discriminant Analysis of the Comprehensive Model

Variable	b	s	Group	Discriminant Functions Centroids
Dollar Amount	.71	.54	Not enrolled	-1.40
State		.49	.42	Enrolled .69
ACT composite Score		-.43	-.08	
Non Alumni Parent		-.41	-.20	
Departmental Scholarship	.36	.31		
Explore Senior Invited	-.33	.11		
Alumni Parent		-.33	.06	
Tiger senior Invited		.28	.23	
Tour of campus	.26	.14		
Tuition Honors Scholarship		-.25	.04	
College Mail		.23	.05	
Hispanic		.23	.05	
FFA Judging Competition	.22	.00		
TAger Day 97		.20	.06	
Scholarship		.19	.49	
Campus Visit		.18	.11	
College Work Study Program		-.17	.13	
Rally		-.17	-.00	
Gender		-.15	-.06	
SAT Packet		-.14	-.15	

Eigen Value	Rc	Wilk's Lambda	P
.971	.701	.507	<.001

b = standardized discriminant function coefficient
s = within group coefficient

Rc = canonical correlation coefficient

The factors which were found to have the highest standardized coefficients were the dollar amount of financial aid awarded to the students, whether or not the student came from the state of Louisiana, the score obtained by the student on the American College Testing (ACT) examination, whether or not the student was awarded a departmental scholarship, whether or not the student's parent was an alumni of LSU, and whether or not the student received the LSU alumni association scholarship. A further examination of Table 1 reveals that the variable Amount had the highest within-group structure coefficient, s = .54. The variables that met the criteria for substantive significance (defined as those variables that had a structure coefficient of half or more than half the within-group structure coefficient of the highest variable) were whether or not the student came from within Louisiana, whether or not the student was awarded a departmental scholarship and whether or not the student was awarded a scholarship. Finally, the percent of correctly classified cases were examined. The comprehensive model was found to correctly classified 85.84% of the cases analyzed.

The Comprehensive Recruitment Model

Besides the comprehensive model, to accomplish objective two, a comprehensive recruitment model was determined. This model only included recruitment strategies. The demographic variables were eliminated.

Prior to conducting a discriminant analysis, independent variables to be included in the analysis were examined for the presence of multicollinearity. This was done by regressing each independent variable on all the other independent variables (Lewis-Beck, 1980). This procedure helped in establishing whether there were any cases of multicollinearity. The cumulative R^2 was checked to determine whether or not it approached 1.00. It was determined that there were no problems with collinearity. The computed standardized canonical discriminant function coefficients were examined. As shown in Table 2, the centroids for the groups were determined to be -1.25 for the not enrolled group and .63 for the enrolled group.

Table 2
Summary DATA for Stepwise Discriminant Analysis of the Comprehensive RecruitmentModel(N=226

Variable	Discriminant Functions b	s	Group Centroids	
Dollar Amount	.70	.62	Not enrolled	-1.25
State	.68	.49	Enrolled	.63
Explore Senior Invited	-.40	.35		
Alumni Parent	-.33	.06		
Tiger Senior Invited	.28	.23		
Departmental Scholarship	.27	.35		
Tuition Honors Scholarship	-.25	.06		
FFA Judging Competition	.20	.02		
College Mail	.19	.05		
Rally	-.19	-.00		
Preview Invited	-.18	-.01		
Campus Visit	.18	.12		
Tour of Campus	.17	.16		
Other Sources of Funds	.16	.31		
State Vocational Rehabilitation Scholarship	.16	.14		

Eigen Value	Rc	Wilk's Lambda	P
.794	.665	.558	<.001

b = standardized discriminant function coefficient

s = within group coefficient
Rc = canonical correlation coefficient

Data in Table 2 shows further that a total of 15 factors entered the discriminant model and produced an overall canonical correlation of $\underline{R}$ = .665. This indicates that the combination of the 15 factors in the model explained a total of 44% of the variability in whether or not students entered the College of Agriculture at Louisiana State University as freshmen.

The factors which were found to have the highest standardized coefficients were the total dollar amount awarded to the prospective students in the form of financial assistance, whether or not the student was from within the state of Louisiana, whether or not the student was invited to Explore LSU program during the senior year of high school, whether or not the student received LSU alumni scholarship (Top 100), whether or not the student was invited to Tiger Day during the senior high school year and whether or not a departmental scholarship was awarded.

A further examination of Table 2 reveals that the variable "Amount" had the highest within-group structure coefficient, s = .62. The variables that met the criteria of substantive significance (defined as those variables that had a structure coefficient of half or more than half the value of the within-group structure coefficient of the highest variable) were, whether or not the student came from within Louisiana, whether or not the student was invited to Explore LSU Program as a senior and whether or not the student was awarded a departmental scholarship. Finally, the correctly classified cases were examined. The comprehensive recruitment model was found to correctly classify 83.19% of the cases analyzed.

The Most Efficient Recruitment Model

The most efficient model in this study was defined as the model which included the fewest number of recruitment activities while still providing the researcher with a model that was both substantively and statistically significant. To determine the model, the comprehensive recruitment model was used as a base and all variables meeting the criteria for substantive significance for both the discriminant function coefficients and the within-group structure coefficients were selected. A series of discriminant models (3 factor to 14 factor) were examined to determine the most efficient model.

Each of the models was examined for the percent of the correctly classified cases to select the most efficient model. All of the models examined (3 factors to 14 factors) had a total percent of correctly classified cases varying from 76.55% to 83.19%. In addition, when fewer factors were entered, the drop in the overall total correctly classified cases was very small. The model that was chosen as the most efficient was the 6 factor model, as it had a very high percent of enrolled cases correctly classified, 82.7%. This percentage was the same as the one obtained for the 14 factor model. The six factor model also had a very high total percent of correctly classified cases of 80.09%.

The initial step in examining the derived most efficient model was to compare the groups on each of the independent variables. Independent variables to be included in the analysis were then examined for the presence of multicollinearity using Lewis-Beck's (1980) technique. The researcher determined there was one problem with multicollinearity, and one of the collinear variables was accordingly eliminated from the final analysis. Each of the factors that entered this model was statistically significant, however, fewer factors were found to meet the criteria of substantive significance for inclusion of the factor in the final model.

Since the purpose of this model was to determine the most efficient model, all variables were retained that met the statistical criteria for inclusion. As shown in Table 3, the centroids for the groups were determined to be -1.112 for the not enrolled group and .56 for the enrolled group. A total of six factors entered the discriminant model and produced an overall canonical correlation of $\underline{R}$ = .622. This indicates that the combination of the 6 factors in the most efficient recruitment model explained a total of 39% of the variability in whether or not students entered College of Agriculture at LSU as freshmen.

Table 3
Summary DATA for Stepwise Discriminating Analysis of the Most Efficient Recruitment Model N=226

Variable	b	s		Discriminant Functions
	Group	Centroids		
Dollar Amount	.79	.70	Not enrolled	-1.112
State		.70	.55	Enrolled	.563
Departmental Scholarship	.32	.39		
Explore Senior Invited	-.31	.16		
Tuition Honor Scholarship	-.23	.07		
Preview Invited	-.22	-.01		

Eigen Value	Rc	Wilk's Lambda	
.632	.622	.613	<.001

b = standardized discriminant function coefficient
s = within group coefficient
Rc = canonical correlation coefficient

Table 3 shows further that the factors which were found to have the highest standardized coefficients were the total dollar amount of scholarship awarded to the student, whether or not the student was from within the state of Louisiana, whether or not the student was awarded a departmental scholarship, whether or not the student was invited to Tiger Day as a senior in high school, whether or not the student was awarded a tuition honors scholarship and whether or not the student was invited to LSU preview.

Data in Table 3 show that the variables Dollar Amount (the total dollar amount awarded to the student), STATE (whether or not the student came from within Louisiana) and whether or not the student was awarded a departmental scholarship met the criteria of substantive significance for inclusion in the model. The variable the total dollar amount awarded to the student had the highest within-group structure coefficient of s = .70. While the variables STATE and Departmental Scholarship had structure coefficients of s = .55 and s = .39 respectively. The other variables that entered the model were retained since the purpose of this model was to establish the most efficient recruitment model. Finally, the correctly classified cases in the most efficient model were examined. This model correctly classified a total of 80.09% of the cases analyzed.

Conclusion

Substantively and statistically significant models do exist that increase the researcher's ability to correctly classify prospective students on their enrollment status at Louisiana State University in the College of Agriculture. Despite the fact that there are several factors that influence the college choice decision making process, the models in this study are viable. The comprehensive, the comprehensive recruitment and the most efficient models in the study not only identify factors that correctly classify the prospective students in the study, but also determine the specific students who were correctly classified as enrolled.

The researchers recommend refinement of the model by replicating the study, at smaller units. University admissions office, college recruitment personnel and all personnel involved in the recruitment of freshmen should engage in further study of the enrollment modeling as a way of improving enrollment management. The science of enrollment management is becoming complex and therefore requires more studies of this nature to help in explanation and prediction of student enrollment status. The College of Agriculture and all other colleges in the university require efficient and modern recruitment strategies that will ensure that students who fit" the mission of each college are recruited.

Limitations

This study mainly relied on quantitative methods of data collection and analysis. While this was necessary because of the nature of the study, the findings of the study could have been strengthened by employing a mixed methodology. This could have been done by interviewing some of subjects in the study.

The findings of the study can only be generalized to the sample of the 226 subjects who were included in the study and not the entire college of agriculture students who made initial contact with the college recruitment officers and the university undergraduate admissions officers during the year of investigation. Although limited in scope, the data generated from this study provide insight to enrollment management directors, faculty and all personnel engaged in the complex and unpredictable science of enrollment management.

Implication for HRD

Most of the existing HRD programs enroll graduate students. The findings of this study show that substantively and statistically significant recruitment models exist that can be employed in marketing undergraduate programs. In view of these findings, several implications emerge pertaining to HRD:

This analysis suggests that each HRD program like other university programs must endeavor to employ the most efficient recruitment models that will safe dollars while admitting the students who meet the "fit" and mission of the program. Further, refinement of the model by HRD professionals engaged in the training of graduate students is necessary. As the HRD programs develop in the US and other parts of the world, student recruitment studies become necessary. The science of enrollment management is becoming complex and therefore those running HRD programs and Colleges of Education need to conduct more studies of this nature to help in explanation and prediction of student enrollment status. All admissions officers and faculty involved in the marketing of HRD programs should benefit from the results of this study. As the findings of the study show, student recruitment requires combined effort from enrollment directors, staff and faculty.

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Innovative Techniques in The Training of Health Professionals: The Case of Moi University, Faculty of Heath Sciences, Kenya

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This article argues that innovative teaching /learning methods are quickly replacing the traditional methods which were characterised by straight lectures, large group demonstrations and apprenticeships. The current knowledge revolution requires innovative educational methods in the training of professionals. The current emphasis is to place the learner at the centre of the learning process. This emphasis shifts the responsibility of teaching/learning from the teacher to the learner. The paper specifically discusses the training of health professionals at Moi University and the innovative training strategies employed in the training.

Traditional teaching methods characterised by lectures and large groups demonstrations are quickly being replaced by modern innovative teaching/learning methods. The growing need for new and effective approaches was recognised by education in the field of basic and secondary school education in Kenya more than two decades ago when the calls were made to change curricula to make them more practical and relevant to the needs of the Kenyan people which led to the current 8-4-4 system of education. In this system, we have 8 years of Primary education, 4 years of secondary education and a minimum of 4 years of university education (Ministry of Education, 1984).

The interesting development is the recent recognition by some educators of the need for innovative education in institutions of higher learning particularly in the training of health professionals at Moi university.

The main emphasis of the innovative teaching method is to place the student at the centre of the teaching/learning process and to place the burden and responsibility for learning on the learner. The other major emphasis is to avoid rote-learning and to develop problem-solving and life-long learning skills for the learner; in short -teaching the student how to learn.

Hard core traditional educators who thrived in preparing lesson plans and then lecturing for hours to passive students find it difficult to change. They ask, 'why do we need new teaching and learning strategies now, whereas we seem to have been doing well with lectures, practical demonstrations and apprenticeships for centuries?"

Some traditional educators who are responsible for training health professionals complain louder than all other educators. They ask, 'why do health workers have to contend with the burden of how to learn besides the heavy burden of the immense subject matter of the various courses they have to take ?" These questions and others sum up the problem and need for innovative education especially for health professionals who are involved in the field of training and development.

Problem Statement

Trainers of all professionals particularly health professionals have experienced a great need to adopt new teaching/learning methods which will ensure effective learning for their trainees. This need has arisen from the knowledge-explosion, and the rapid technological changes which characterise our modern world. The traditional lecture methods where experts talked for hours to passive students, coupled with demonstrations done by the experts to large audiences have fallen out of favour. As trainers flee from the traditional methods, they have found themselves in the middle of a new problem – the problem of identifying and applying the innovative teaching/ learning methods thus replacing the out-dated traditional methods.

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The primary purpose of this paper was to conduct a thorough review of literature to identify the innovative teaching/ learning methods. The paper also discusses the application of the innovative teaching learning strategies at the college of Health Sciences, Moi University, Kenya.

Research Questions

1. What innovative teaching/learning methods are appropriate for training health professionals at Moi University, Kenya, given the new environment which is characterised by rapid increase of knowledge and rapid technological changes?
2. What do innovative teaching methods or techniques entail?

Rationale for Innovative Teaching and Learning Strategies Increasing complexities of modern life call for adaptation to many changes that take place in many aspects of our daily lives, especially in this knowledge explosion era (Nafukho, 1998). Education ought to prepare professionals to adapt to the many changes, hence the need for innovative learning and teaching methods several powerful reasons have been offered as explanations for the rapid development of innovative educational methods. These have been articulated as follows :

1. Teaching methodologies that enable students to develop competencies required for successful, professional life, promote life-long learning, develop self-directed learning skills and problem solving skills have become more valuable than traditional methodologies.
2. Harden et al. (1986) noted that "through years at an authoritarian medical school, idealistic young doctors are moulded into rigid doctors who have lost much of their original ability." Medical and allied health professionals have also identified the deficiencies of traditional methods of training which have been characterised mainly by lectures, and large group demonstrations. They have developed new approaches and methodologies to address the deficiencies of the traditional methods.
3. Information explosion and rapid increase of knowledge-bases around the world has overtaken traditional teaching methods therefore teaching 'How to learn" and 'How to find out " have become more valuable than teaching digested facts, or spoon feeding 'facts" to students.
4. Rapid technological changes have further complicated learning. The technology which is taught, crammed and practised today is obsolete before the students graduate, therefore, teaching methodologies that promote life-long learning skills have become more valuable because they enable graduates to keep-on-learning and keep up to date even after leaving school (Nafukho and Holmes, 1998)
5. Professional life in modern times calls for adaptability, participation in change and interaction with different specialists in problem-solving teams. Teaching methodologies that enable students to develop competencies required for successful professional life have become increasingly preferable to the straight-lectures and the rote-learning traditional methods, commonly employed by Kenyan University Lecturers and trainers.
6. Fast changing society, an expanding body of knowledge (information explosion), and rapid technological changes demand Continuing Education Therefore, learning skills developed during innovative education, enable doctors and other health professionals to do Continuing Education in a self-directed manner. Study and practice in the areas of medicine and health sciences is a life-long task.

Innovative education unlike the traditional education is a process which helps the student to develop skills such as:-

- Self directed learning
- Problem-solving
- Critical thinking
- Communication
- Information searching
- Evaluation
- Clinical reasoning
- Continuing Education
- Emotional & Social support
- Interpersonal

All of these skills help to convert students into: independent learners

During the teaching/learning process traditional teachers/lecturers are converted from preachers (information conveyor belts) to people who simply:

- facilitate
- advice
- guide (control)
- inform
- participate
- withdraw

Historical Development Of Innovative Medical Education

In the mid 1970's, many countries around the world had developed centres in faculties of health and medical schools with the growing recognition that a body of education/science needed to be understood by teachers of medical and allied health professions.

It was increasingly noted that by training teachers of medical and allied health professionals in educational methodology, the overall results were satisfying and rewarding. Specifically it was noted that modern medical education calls for teaching and testing beyond rote memorisation of facts and that training should be to done for:

- understanding of knowledge
- application of knowledge
- individual performance in realistic situations

As far back as 1951 a World Health Organisation (WHO) committee had made mention of the need for medical education. The first medical education program to meet the need for trainers familiar with appropriate educational methodologies was launched in University of Illinois WHO centre in 1959. In 1970 WHO began comprehensive co-ordinated long term programs for trainers of health professionals. In the same year an agreement was signed and WHO set up training centres for teachers of medical and allied health professionals. After establishing the Illinois Center, there was a proliferation of centres of educational Development for health professionals especially during the period 1971-73. The following centers were established during this period:

- For English speaking countries - WHO Regional Teacher Training Centre
- (WHO - RTTS) at Makerere University, Uganda.
- For French speaking countries - WHO Regional Teacher Training Centre at University Centre Younde, Cameroon.
- For Americas - WHO - RTTC in Mexico, and in Rio De Janeiro, Brazil.
- For Eastern Mediterranean at Pahlari University, Shira, Iran.
- For Western Pacific - University of New South Wales in Sydney, Australia.

Innovative medical education has been developed in response to dissatisfaction of public and health professionals with results of traditional medical education. Innovative strategies were used the Greeks – in what were called the dialogue and questioning method (Plato) (Boud and Feletti 1991). Chamberlain (1889) advocated "Multiple-making hypotheses." John Dewey (1916) recommended the use of Real-Life situations", and problems to be presented as part of the learning process. John Dewey (1929) and Piaget (1969) had actually demonstrated the ineffectiveness of providing ready made solutions to learners. Frazer (1931) and Brunner (1961) demonstrated how problems may be used in education. Recently (1980) Cyert pointed out that "All professionals are problem solvers and should be taught in problem-solving processes.

Brunner is the main proponent of discovery learning which is an important aspect of Problem-Based Learning (PBL). Frazer founded the case study method in which a case contained the facts, opinions and expectations needed to trigger off and feed a process of learning.

In 1961 the application of the problem-solving approach to the whole medical curriculum was started by Ham and associates at Case Western university, Cleveland Ohio, USA, in a Haematology course. The results of a comparison between students taught in the didactic method and those taught in innovative way - PBL -SDL showed the latter to be superior in exam scores

In 1969, Howard Barrows in McMaster University in Ontario, Canada established the first problem solving curriculum. The approach they developed was the PBL approach. This method resembled both discovery learning

and the case study method. In 1974, the university of Maastricht became the first European medical school to start an innovative medical education program, Problem-Based Learning (PBL).

The other well known universities to launch innovative medical education programs include:

- •New Castle Medical School, Australia -(1979)
- •Suez Canal University, Faculty of Medicine, Egypt -1982.

WHO has contributed generally to the establishment of innovative medical education programmes. It supported the establishment of a net work of community -oriented educational Institutions for health sciences in 1979. By early 1990's, it is notable that more than 50 institutions, had became members of the network. By mid 1990's, more than 70 countries had signed up as collaborating members in Problem -Based Learning. In the case of kenya, It is noteworthy that the college of health sciences of Moi University became a WHO Problem-Based Learning collaboration centre in 1994.

Theoretical Framework

The framework of this paper centers on the work done by World Health Organisation (WHO) in the area of effective education for health workers and the efforts of the college of Health Sciences ofMoi University, Kenya to respond to the need for identification and application of innovative teaching/learning methods. As shown in the historical background of this paper, even before 1951 a committee of WHO had mentioned the need for measures which would ensure effective teaching of health workers. Since the health professionals make a major contribution to national development, it is crucial that their training should emphasize the application of the knowledge acquired during training.

Research Methodology

This is mainly a concept paper that has reviewed the pertinent literature in the work done by WHO in the area of medical education and the literature pertaining to innovative teaching/learning methods. This is then applied to the actual teaching practices employed by the College of Health Sciences,Moi University, Kenya.

Innovative Teaching at Moi University College of Health Sciences

The mission of Moi University is to produce graduates with practical and intellectual skills appropriate to the needs of present and future Kenyan society. The College of Health Sciences of Moi University strives to ensure that the students acquire such skills using modalities that encourage active learning in the context in which they will later function as health professionals.

The philosophy of the college, also embodied in the curriculum, entails training a doctor in the context of the community, in which he/she will later practise. It encourages the student to acquire the important skills of self directed learning, problem solving, and effective communication. Moreover the college emphasises not only curative, hospital based medicine, but also , through its community oriented approaches, prevention of diseases and promotion of good health.

Research orientation and an inquiring mind are integral parts of the training of a medical student, as well as other health professionals. The college, therefore also lays emphasis on acquisition of knowledge and skills in research, so that the graduates from all her programs will be able to carry out research, in the health and health related issues in modern day Kenya.

As a result of the overall mission and philosophy of Moi University, the orientation of educational programs at the College of Health Sciences are population and community based. The teaching and learning strategies have been deliberately chosen to encourage acquisition of an integrated and holistic body of knowledge and skills through self - directed active learning methods. This supports the mission of Moi University of producing graduates who are practical in outlook and suited to meet the needs of the present and future Kenyan society.

Innovative Teaching Methods

The following are the common methods used in innovative medical education :

- Self-directed learning (SDL)
- Small Group tutorials/Discussions
- Competence-Based learning
- Community Based education & service
- S P I C E S
- Case study
- Project
- Demonstrations
- Illustrated/Overview Lectures
- Role-play
- Computer-Assisted Instruction (CAI)

Self Directed – Learning Self-Directed Learning involves clear establishment of objectives by the learners. This may be done by individuals or groups of students. They may do it entirely on their own, or with some guidance from tutors. Information gathering commences and may lead students to either the library, learning resources centres, outpatient and in-patient hospital locations. It may lead student to consult either among themselves, their tutors, subject experts or guest consultants

The major aspect of self-directed leaning is that students determine what they need to learn and to what depth. However, some guidance has to be put in place, and the availability of resources persons included whenever needed.

A special point worth noting in self-directed learning, is that tutor/guides, student guides, course booklets and curricula have to be available to students. This is in recognition of the fact that although some students may be fully capable of self directed learning, a small percentage require occasional guidance while a greater majority may require much more guidance from tutors. Student guides and other booklets may reduce the need for students to depend on tutors for their learning. SDL at Moi University is used in conjunction with Problem - Based – Learning (PBL). At times it is used entirely on it's own as a method of teaching depending on the circumstances.

Small Group Tutorial/Discussions Small Group Tutorial discussions, involves small number of students working together in the teaching/learning process. The number of students in a group ranges between 5 -10. Small group tutorials facilitate the development of many skills which are emphasised in innovative medical education and thse include :

- Problem-solving skills
- Communication skills
- Reasoning skills
- Interpersonal skills
- Teamwork
- Attitude - shaping

Ideally small group tutorials should function under the supervision of a tutor whose role should be facilitatory as opposed to authoritarian. However, group dynamics need to be taught to students in order to prepare them for the interaction and the effects of this on student learning. Particularly, students need to know of the stages of group encounters and interaction such as :

- Forming
- Storming
- Norming
- Performing
- Teamwork
- End of group work

Competence Based Learning Competence Based Learning emphasises performance of the learners in terms of knowledge, skills and attitudes, and is therefore an appropriate method for professional training.

Competency Based Curricula The competency -based curricula have been used in designing and developing educational programs in health professions for many years. This model has been found to be quite appropriate in Problem-Based Learning, students-centred, community-oriented and integrated programs (Mutema, Kang'ethe and

Kivanguli, 990), Harden, (1986) described ten major steps that are critical in developing a competency -based curriculum. Table1 presents the process of developing a competency - based curriculum in health professions.

Table 1
Process of Developing Competency-Based Curricula in Health Professions

Step	Activity
Step 1	Identification of health problems
Step 2	Identification of professional roles and functions.
Step 3	Performing Task Analysis on Professional roles and functions.
Step 4	Development of educational Aims, Goals, and Objectives/ Task Analysis.
Step 5	Identification and selection of Subject matter/ Content to be learnt.
Step 6	Identification of teaching/ Learning Methods.
Step 7	Identification/ Selection of Learning resources.
Step 8	Identification of Assessment Tools to determine learner performance.
Step 9	Curriculum Implementation
Step 10	Curriculum Review and Change.

Community Based Education and Service (COBES) Community Based Education and Service is basically aimed at providing students with opportunities for learning within the communities. During such periods, students learn the sources, the nature and magnitude of health problems and related problems. In exchange for learning in this real life environments, students provide needed health-related services to different communities, each according to need.

SPICES The S P I C E S method is an approach that is commonly used at the Faculty of Health Sciences of Moi University. It is more than a teaching/learning method it is also a curriculum development approach. The Spices model is another educational approach that has been found extremely useful in developing curricula in health professions and especially those educational programs that put emphasis on problem -based learning, students centered, integrated community-oriented, electives and systematic as the acronym "SPICES" shows. The spices model has been found appropriate in planning, review and tackling problems related to the curriculum and in providing guidance relating to teaching methods and assessment of student performance.

In recent years there has been increased interest in curriculum planning in health professions due to many factors which have been raised earlier. In planning the curriculum and especially in new faculties of health sciences, innovative approaches such as (SPICES) have been considered. These are shown in Table 2 and are compared with traditional approaches in medical education.

Table 2:
Curriculum Approaches -- "SPICES" VS TRADITIONAL

	"SPICES"	Traditional
S	Student- Centred	Teacher-Centred
P	Problem Based	Information Gathering
I	Integrated	Discipline Based
C	Community- Oriented	Hospital -Based
E	Electives	Standard Program
S	Systematic	Apprentice-Based Or Opportunistic

In the planning and developing of the Moi University Health Sciences curriculum the use of the "SPICES" had to be considered in order to assist the teachers to understand the particular educational strategies they needed to use in implementing their programs. Also, by examining each of these issues it gives teachers and policy makers a better understanding and insight into the whole curriculum. The competency-Based Model and the spices model of curriculum development are useful educational strategies that have been used at Moi University to develop relevant curricula which are responsive to the health needs of the community. The application of these models has also assisted in making rational decisions during the initial planning stages and also during the actual process of designing, developing, integrating, implementing and evaluating the curricula.

Case Study This is a method in which medical and allied health professionals select cases and use them as the focus of study. Students take each case, read about it, analyse it, and make suggestions and recommendations regarding the case on the basis of the evidence they have gathered. Problem-solving skills including information searching skills are developed among other skills.

Project Method This is a method of teaching/learning in which learners are assigned a task or group of tasks to carry out over a given period of time. At the end of the same period, the learners make a presentation or submit project -reports for assessment. At Moi university students choose their own projects with guidance from their tutors.

Demonstrations This is a most appropriate method, especially for teaching skills. In the innovative medical education, several points are emphasised with a view of facilitating maximum benefit from this process. The cardinal point of emphasis is that provision be made for students to practise and actively participate in the learning process. Therefore, such aspects as demonstration being clearly visible to learners, audible and correct in procedure are deemed as vital..

Illustrated/ Overview Lectures In traditional medical education, lectures are typically cathedral type, boring and for the majority of students facilitate little learning. In innovative medical education lectures are to be over - view and spanning the major areas of study. As little time as possible is spent on direct lecture, with opportunities sought to interact with the learners whenever possible. - Use of handouts, posters, charts and other audiovisuals are encouraged in order to provide illustrations for the topics being addressed.

Role Play This is an old method of teaching but increasing in popularity hence its inclusion among innovative medical education methods. Depending on the objectives of a session, a tutor or students, assign each other different roles. By acting out these roles, students learn various correct functions and responsibilities intended for the session. Active participation and team work are among the major benefits of this method. Clear statements of the goals and objectives of the session are however necessary.

Computer Assisted Instruction Computers are being used increasingly in all spheres of education. Particularly, they are being used for teaching as well as assessment. Cox and Ewan (1988:244)indicate that three broad categories of computer programs are available for medical education which include:

- computer assisted instructions -CAI
- computer assisted assessment -CAA
- computer managed instruction-CMI

At the College of Health Sciences, Moi University, Introduction to computer applications is one of the courses that all student are required to take during the first year of study. In subsequent years, students are encouraged to use computers which are conveniently placed in resource rooms and laboratories. Although computers may not currently be extensively used in the developing countries there is evidence of increased use in future especially in urban areas.

Contribution to Human Resource Development

The Human Resource Development field has a major role to play in promoting learning both at the workplace and at the learning institutions. As demonstrated in this paper HRD professionals who are engaged in training must employ innovative teaching techniques which aim at producing effective and creative professionals. The health workers who have been trained at the College of Health Sciences of Moi University, include three groups of medical doctors, environmental health officers and nurses. The three cohorts of students who have graduated from the College have been very successful in the field. The general feedback from their supervisors in Provincial and District hospitals where they work, has been very positive. The graduates have been described as being very practical and community oriented.

Conclusion

Preparing effective doctors and auxiliary health professionals for the 21st Century will require innovative teaching methods. Such methods will be important in preparing health workers to become independent learners who will be able to effectively deal with the health care problems of the 21st century. This paper has provided the rationale for innovative teaching strategies at Moi University's College of Health Sciences, Kenya. Also discussed is the historical development of innovative educational programs world over. The paper has equally discussed in detail

innovative teaching methods employed in the training of health professionals in the College of Health Sciences, Moi University, Kenya.

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